FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

December 30, 2012 to January 5, 2013 (Week 01)

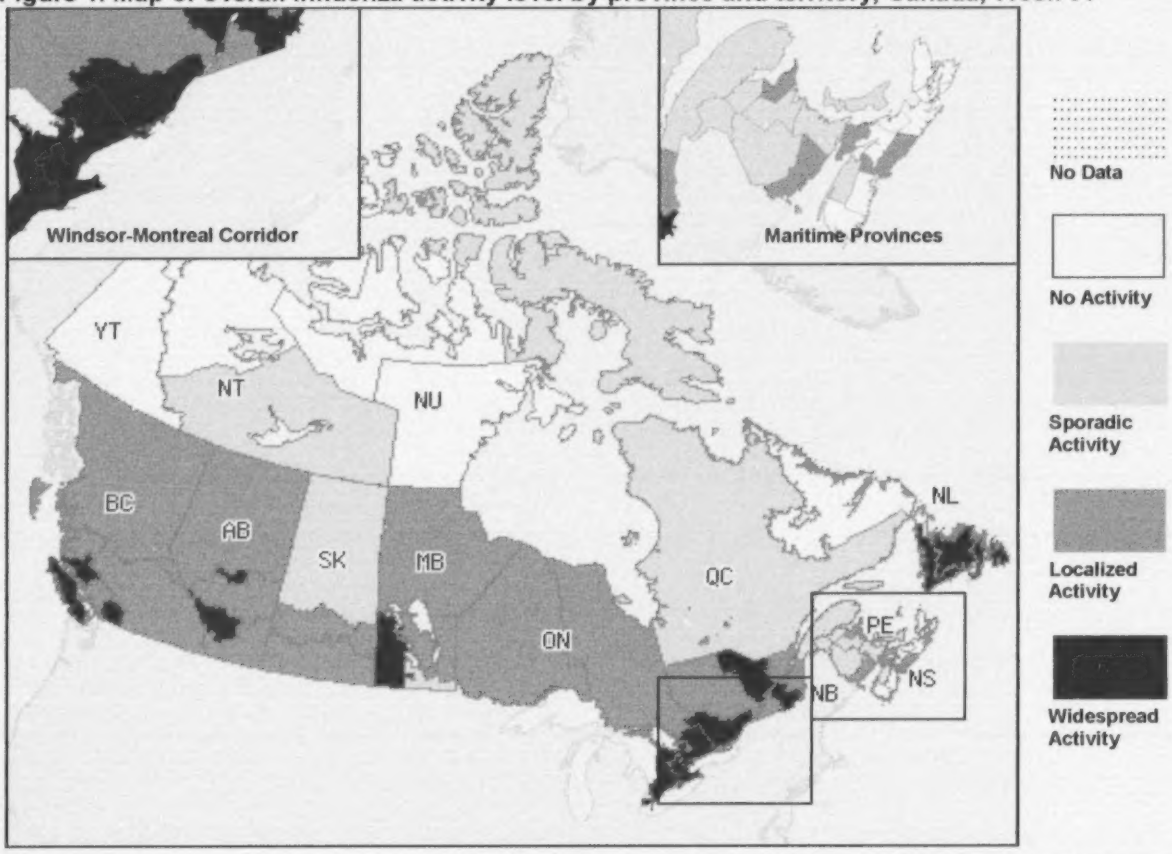
Overall Influenza Summary

- Although the percentage of positive laboratory tests for influenza declined slightly in week 01, more regions across Canada reported widespread and localized influenza activity and 107 new influenza outbreaks were reported.
- A total of 3864 laboratory detections of influenza were reported, of which 98.1% were for influenza A viruses, predominantly A(H3N2).
- 69 new paediatric influenza-associated hospitalizations were reported through the IMPACT network.
- 26 new adult influenza-associated hospitalizations were reported through the PCIRN-SOS network.
- The ILI consultation rate decreased, but is above the expected range for this time of year.

Influenza Activity (geographic spread) and Outbreaks

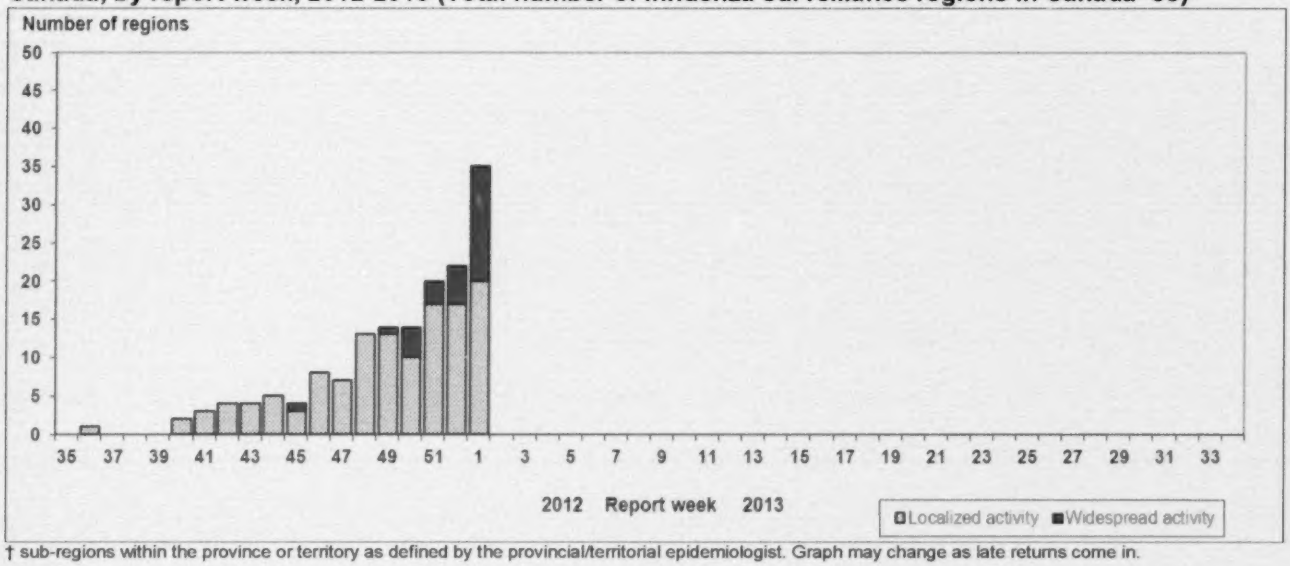
In week 01, 15 regions [in BC(2), AB(2), MB(1), ON(5), QC(2) and NL(3)] reported widespread activity and 20 regions [in BC(3), AB(3), SK(2), MB(3), ON(2), QC(3), NB(2), and NS(2)] reported localized activity (Figures 1 and 2). In week 01, 107 new influenza outbreaks were reported: 88 in long-term-care facilities, 5 in hospitals, one in a school, and 13 in other facilities or communities (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 01



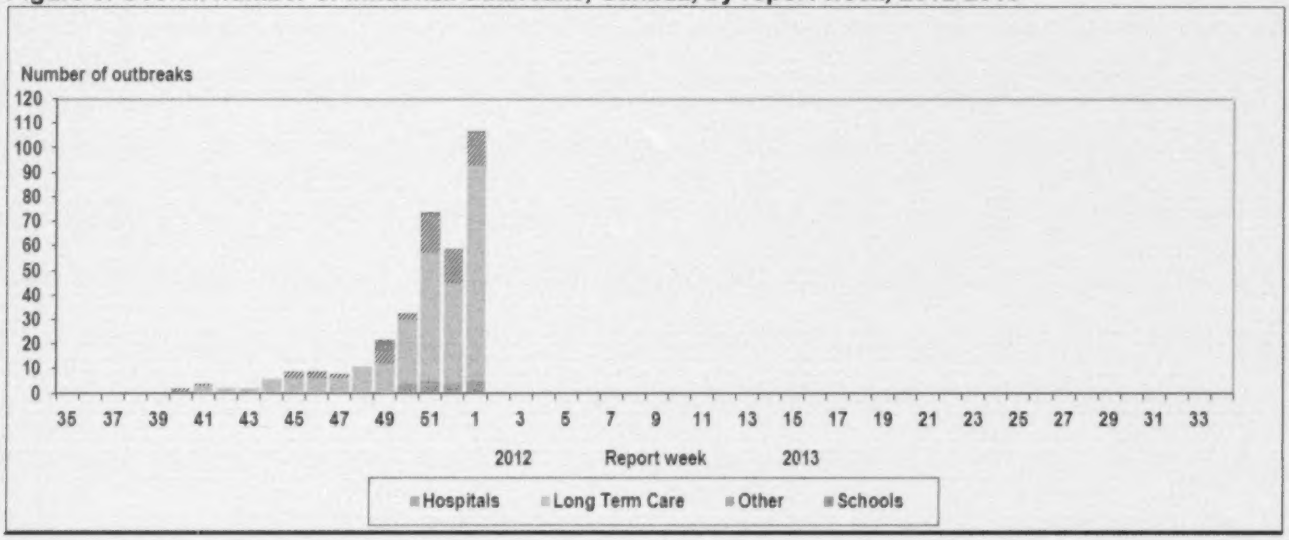
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2012-2013 (Total number of influenza surveillance regions in Canada=58)



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2012-2013



Influenza and Other Respiratory Virus Detections

The percentage of positive influenza tests decreased slightly from 34.5% in week 52 to 32.4% in week 01 (Figure 4). Among the influenza viruses detected in week 01 (n=3864), 98.1% were positive for influenza A viruses [of which 25.7% were A(H3), 1.1% were A(H1N1)pdm09, and 73.2% were A(unsubtyped)]; and 1.9% were positive for influenza B (Table 1). Cumulative influenza virus detections by type/subtype to date are as follows: 97.5% influenza A [33.2% A(H3), 1.2% A(H1N1)pdm09 and 65.6% A(unsubtyped)] and 2.5% influenza B (Table 1).

Detailed information on age and type/subtype was received for 10,867 cases to date this season (Table 2). The proportions of cases by age group were as follows: 13.1% were < 5 years; 8.1% were between 5-19 years; 15.6% were between 20-44 years; 16.3% were between 45-64 years of age; 46.9% were ≥ 65 years.

The percentage of tests positive for RSV decreased slightly from 11.5% in week 52 to 10.2% in week 01. The percentage of tests positive for rhinovirus declined to 3.3% in week 01. Parainfluenza declined to 2.0% while coronavirus detections increased to 3.0% in week 01. Other percentages of positive tests remained low in week 52: adenovirus 0.6%; hMPV 0.8% (Figure 5). For more details, see the weekly Respiratory Virus Detections in Canada Report.

Table 1. Weekly and Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2012-2013

Reporting provinces	Weekly (December 30 to January 5, 2013)						Cumulative (August 26, 2012 to January 5, 2013)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	166	0	105	2	59	9	391	0	316	5	70	20
AB	262	0	172	21	69	11	1295	0	1112	65	118	85
SK	109	0	56	1	52	8	412	0	288	4	120	25
MB	48	0	19	0	29	2	124	0	42	0	82	15
ON	1286	0	579	10	697	15	3852	0	2116	60	1676	71
QC	1705	0	0	3	1702	28	6343	0	263	7	6073	100
NB	97	0	39	5	53	0	129	0	59	10	60	1
NS	12	0	0	0	12	2	13	0	0	0	13	2
PE	4	0	3	1	0	0	22	0	21	1	0	1
NL	100	0	0	0	100	0	171	0	16	0	155	1
Canada	**3789**	**0**	**973**	**43**	**2773**	**75**	**12752**	**0**	**4233**	**152**	**8367**	**321**

*Unsubtyped: The specimen was typed as influenza A, but no test for subtyping was performed. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2012-2013*

Age groups	Weekly (December 30 to January 5, 2013)					Cumulative (Aug. 26, 2012 to January 5, 2013)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total
<5	239	4	28	207	17	1362	32	452	878	63
5-19	45	1	8	36	8	821	9	377	435	59
20-44	255	5	31	219	4	1656	37	618	1001	42
45-64	350	8	57	285	3	1728	35	597	1096	38
65+	1299	2	178	1119	18	5039	20	1621	3398	59
Unknown	3	0	2	1	0	48	2	44	2	0
Total	**2191**	**20**	**304**	**1867**	**50**	**10654**	**135**	**3709**	**6810**	**261**

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2012-2013

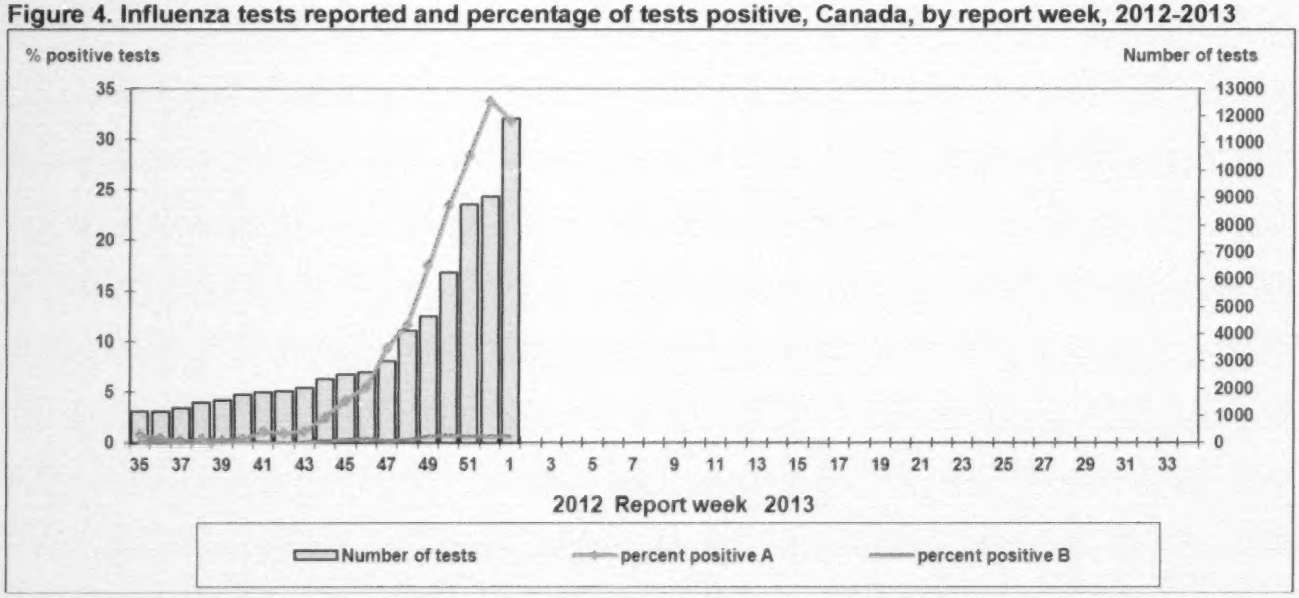
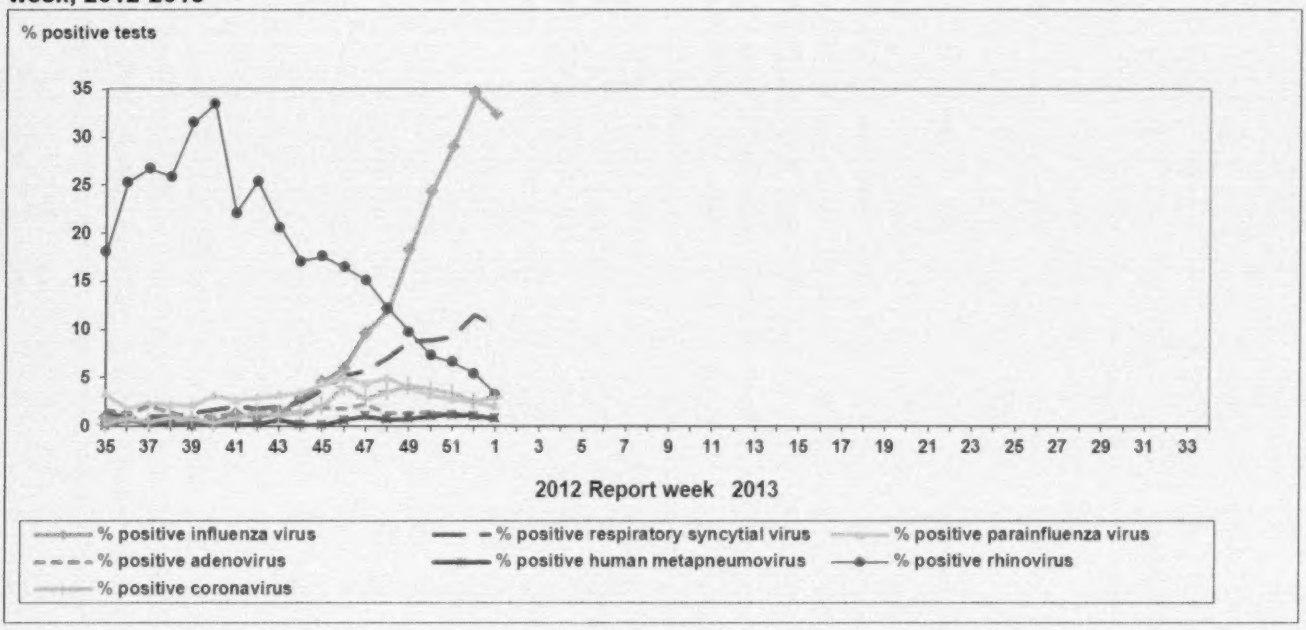


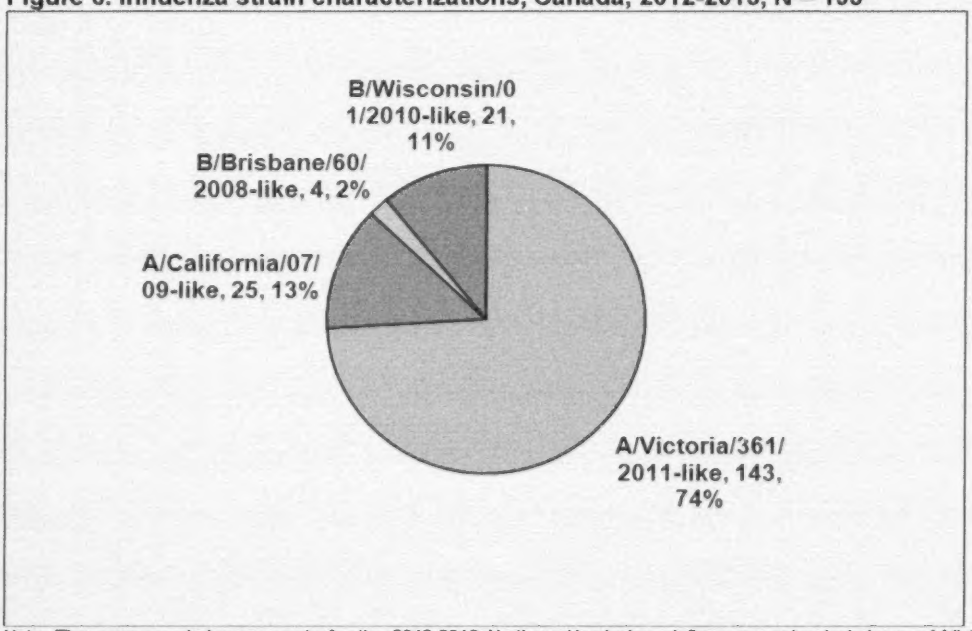
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2012-2013



Influenza Strain Characterizations

During the 2012-13 season, the National Microbiology Laboratory (NML) has antigenically characterized 193 influenza viruses [143 A(H3N2), 25 A(H1N1)pdm09 , and 25 influenza B]. The 143 influenza A(H3N2) viruses were antigenically similar to the vaccine strain A/Victoria/361/2011. The 25 A(H1N1)pdm09 viruses were antigenically similar to the vaccine strain A/California/07/09. Among the influenza B viruses, 21 were antigenically similar to the vaccine strain B/Wisconsin/01/2010 (Yamagata lineage) and four were similar to B/Brisbane/60/2008 (Victoria lineage; component of the 2011-2012 seasonal influenza vaccine) (Figure 6).

Figure 6. Influenza strain characterizations, Canada, 2012-2013, N = 193



Note: The recommended components for the 2012-2013 Northern Hemisphere influenza vaccine include: an A/Victoria/361/2011 (H3N2)-like virus; an A/California/7/2009 (H1N1)pdm09-like virus; and a B/Wisconsin/1/2010-like virus.

Antiviral Resistance

During the 2012-13 season, NML has tested 178 influenza viruses for resistance to oseltamivir, and 176 influenza viruses for resistance to zanamivir. All viruses tested were sensitive to oseltamivir and zanamivir. A total of 243 influenza A viruses were tested for amantadine resistance and all were resistant (Table 3).

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2012-2013

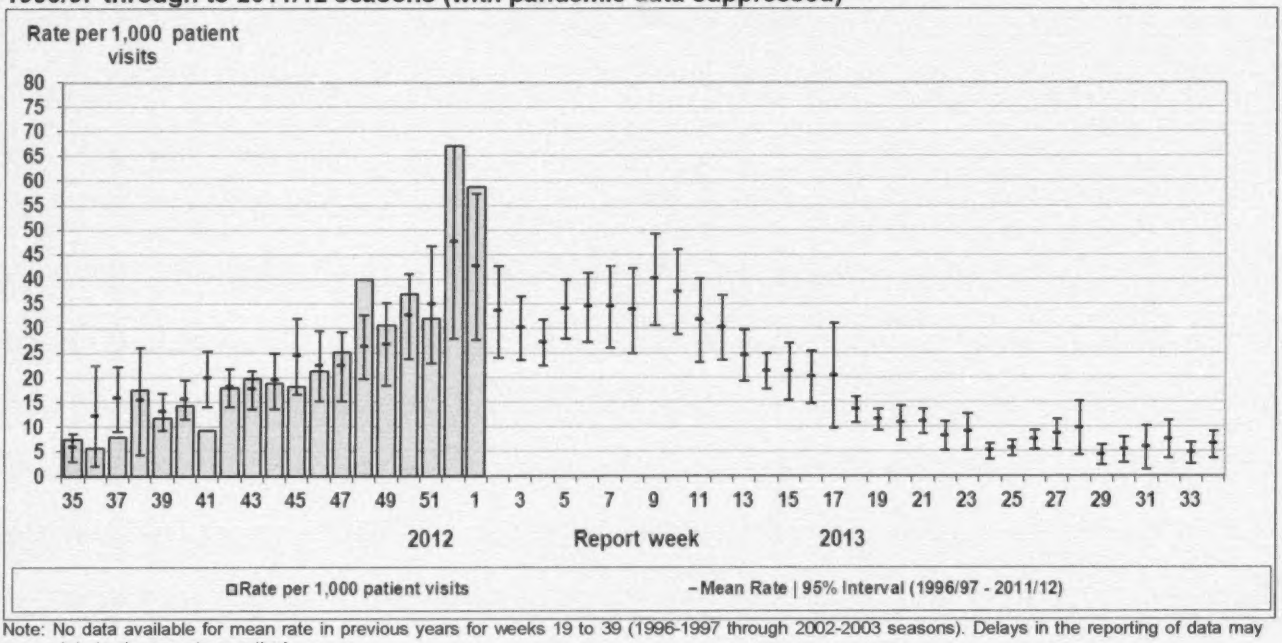
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	137	0	135	0	225	225 (100%)
A (H1N1)	18	0	18	0	18	18
B	23	0	23	0	NA*	NA*
TOTAL	178	0	176	0	243	243 (100%)

* NA – not applicable

Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate decreased from 67.1 ILI consultations per 1,000 patient visits in week 52 to 58.7 in week 01. This rate is above the expected level for this time of year, which is between 27.5 and 57.3 ILI consultations per 1,000 visits (Figure 7). In week 01, the highest consultation rates were observed in children 5-19 years of age (95.5/1,000) followed by children <5 years of age (94.1/1,000).

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2012-2013 compared to 1996/97 through to 2011/12 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Pharmacy Surveillance

The Canadian antiviral prescription rate continued to increase from 303.3 antiviral prescriptions per 100,000 new prescriptions dispensed in week 52 to 335.8 in week 01. Rates of 50-100/100,000 were observed during the peak period during the 2011-12 influenza season, when the percentage of positive influenza tests was between 18%-24% (data from April 2011 to present). Although the current proportion of antiviral prescriptions of 335.8/100,000 is higher than the peak observed last year, it continues to follow the trend of an increasing percentage of positive laboratory tests for influenza. In week 01, the antiviral prescription rate increased for adult and senior age groups, and decreased for infants and children. The highest rate was observed among seniors ≥65 years, at 667.3/100,000.

Note: Pharmacy sales data are provided to the Public Health Agency of Canada by Rx Canada Inc. and sourced from major retail drug chains representing over 3,000 stores nationwide (excluding Nunavut) in 85% of Health Regions. Data provided include the number of new antiviral prescriptions (for Tamiflu and Relenza) and the total number of new prescriptions dispensed by Province/Territory and age group.

Severe Respiratory Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)

In week 01, 69 new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network: 2 from BC, 9 from AB, 2 from SK, 2 from MB, 21 from ON, 31 from QC and 2 from NL. Among the 66 cases identified with influenza A, 60 (90.9%) were A(unsubtyped), 4 (6.1%) were A(H3N2) and 2 (3.0%) were A(H1N1)pdm09. Three cases were identified with influenza B. The age distribution is as follows: 26 cases (37.7%) under 6 months of age, 12 (17.4%) between 6-23 months, 19 (27.5%) aged 2-4 years, 9 (13.0%) aged 5-9 years, and 3 (4.3%) aged 10-16 years. Four ICU admissions were reported during this week, one case between 6-23 months, two aged 2-4 years, and one aged 5-9 years.

Since the start of the 2012-13 season, a total of 342 influenza-associated paediatric hospitalizations have been reported by the IMPACT network: 330 (96.5%) with influenza A [of which 50 (15.2%) were A(H3N2), 2 (0.6%) were A(H1N1)pdm09 and 278 (84.2%) were A(unsubtyped)], and 12 (3.5%) with influenza B. The distribution of cases by age group is as follows: 77 (22.5%) <6 months of age, 69 (20.2%) age 6-23 months, 96 (28.1%) age 2-4 years, 62 (18.1%) age 5-9 years, and 38 (11.1%) age 10-16 years. Thirty-one of the 342 cases (9.1%) were admitted to the ICU. No deaths have been reported to date.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associate paediatric hospitalizations in Canada.

Adult Influenza Hospitalizations and Deaths (PCIRN)

In week 01, 26 new laboratory-confirmed influenza-associated adult (16 years of age and older) hospitalizations were reported by the PHAC/CIHR Influenza Research Network (PCIRN) Serious Outcomes Surveillance (SOS) network: 1 from AB, 1 from MB, 13 from ON, 7 from QC, 2 from NB and 2 from NS. The age distribution is as follows: 19 cases (73.1%) were ≥65 years of age, 5 cases (19.2%) were aged 45-64 years, and 2 cases (7.7%) were aged 20-44 years. Among the 25 cases identified with influenza A, 4% (1/25) were A(H3N2) and 96% (24/25) were A(unsubtyped). One case was identified with influenza B. One ICU admission was reported during the current week in a case ≥65 years of age with influenza A(unsubtyped). One death was reported in a case ≥65 years of age with influenza A(unsubtyped).

From November 4, 2012 to January 5, 2013, a total of 232 influenza-associated adult hospitalizations have been reported by PCIRN-SOS network: 220 (94.8%) with influenza A [of which 29 (13.2%) were A(H3N2), 2 (0.9%) were A(H1N1)pdm09 and 189 (85.9%) were A(unsubtyped)]; 4 (1.7%) with influenza B and 8 (3.4%) were unknown. The distribution of cases by age group is as follows: 156 cases (76%) were ≥65 years of age, 53 cases (22.8%) were aged 45-64, 20 cases (8.6%) were aged 20-44 and 3 cases (1.3%) were aged <20 years. Twelve of the 232 cases (5.2%) were admitted to the ICU. Six deaths have been reported to date, all in cases with Influenza A(unsubtyped). Five deaths were in adults ≥65 years of age, and one was in a person 20-44 years of age.

Note: The number of hospitalizations reported through PCIRN represents a subset of all influenza-associate adult hospitalizations in Canada.

Provincial/Territorial Influenza Hospitalizations and Deaths (Aggregate Surveillance System)

In week 01, 298 laboratory-confirmed influenza-associated hospitalizations were reported. Half of the cases (54% 162/298) were ≥65 years of age. Type and subtype information was available for 252 of the 298 cases. Of these 252 cases, the majority (96.4% 243/252) were influenza A and 3.6% (9/252) were influenza B. Of the 243 influenza A associated hospitalizations, 51.4% (125/243) were A(H3), 2.1% (5/243) were A(H1N1)pdm09 and the remaining were A(unsubtyped). Of the 138 cases with available data, 14.5% (20/138) were admitted to the Intensive Care Unit (ICU). Fourteen deaths were reported in week 01, all but one in persons ≥65 years of age. One death was reported in a case aged 0-4 years with influenza A. The cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases.

To date this season, 885 influenza-associated hospitalizations have been reported from all participating provinces. Half of the cases (51.3% 454/885) were ≥65 years of age, 16.9% (150/885) were adults aged 45-64 years and 15.1% (134/885) were children aged 0-4 years. Type and subtype information was available for 839 cases. Of these, 97% have been influenza A, predominately A(H3). Among the 287 cases with available data, there have been 45 hospitalisations for which admission to ICU was required, 14 (31.1%) were persons ≥65 years of age and 15 (33.3%) were in persons aged 45-64 years. To date this season, 51 deaths have been reported: 90.2% (46/51) were persons ≥65 years of age, 3.9% (2/51) were adults aged 20-44 years, and 5.9% (3/51) were children aged 0-4 years. The cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases.

Note: The number of influenza-associated hospitalizations reported by the Aggregate Surveillance System may include cases reported by the IMPACT network. Note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, QC, NS, and NB. Only hospitalizations that require intensive medical care are reported by SK. ICU admissions are not reported in ON.

International Influenza Updates

WHO: As of 4 January 2013, influenza detections declined in many countries despite rising influenza activity reported in the northern temperate regions of North America, North Africa, eastern Mediterranean and Asia. This may have been due to reduced reporting during the holiday weeks. The start of the influenza season has been declared in northern China. Influenza activity in Europe has increased, mainly the northern and western regions. In central America, the Caribbean and tropical regions of south America, influenza activity continues to decline following the peak in late summer, with low levels of A(H3N2) and influenza B detected. The exception is Bolivia where A(H3N2) continues to circulate. Most countries in Sub-Saharan Africa report declining detections of influenza, except in Ghana and the Democratic Republic of Congo. In South East Asia, influenza circulation was similar to previous weeks with continued low-level circulation. Influenza in temperate regions of the southern hemisphere continues at inter-seasonal levels.
World Health Organization influenza update

United States: During week 01, influenza activity remained high in the United States, but may be declining in some areas. Forty-seven states reported widespread influenza activity, two states reported regional influenza activity, and the District of Columbia reported local activity. The national percentage of outpatient visits for ILI is 4.3% which is above the national baseline of 2.2%. Nine of 10 regions reported ILI above region-specific baseline levels, and New York City and 24 states experienced high ILI activity in week 01. The proportion of tests positive for influenza viruses was 32.8% in week 01. Of the positive influenza detections, 79.8% were positive for influenza A viruses. Of the 1819 influenza A viruses for which subtype information was available, 98.0% were A(H3) and 2.0% were A(H1N1)pdm09. Since October 1, 2012, the CDC has antigenically characterized 521 influenza viruses. Among influenza A viruses, 327 were A/Victoria/361/2011-like, two (0.6%) of which showed reduced titers; and 17 were A/California/7/2009-like. Among influenza B viruses, 118 (66.7%) B/Wisconsin/01/2010-like belong to the Yamagata lineage of viruses; and 59 (33.3%) to the B/Victoria lineage. Two new influenza-associated paediatric deaths were reported during week 01. Twenty cases have been reported to date this season, 13 with influenza A and 7 with influenza B.
Centers for Disease Control and Prevention seasonal influenza report

Europe: In week 01, widespread activity is reported in the northern and western regions, where consultation rates for ILI and ARI (acute respiratory infection) continue to rise. Lower activity is reported in eastern regions. There is continued co-circulation of A(H1N1)pdm09, A(H3N2) and influenza B, although the proportion of A(H1N1)pdm09 is increasing compared to A(H3N2). Since week 40, 9676 specimens of influenza viruses have been typed: 64% were influenza A and 36% were influenza B. Among the 2502 influenza A viruses for which subtype information was available, 42% were A(H3) and 58% were A(H1N1)pdm09. This is a significantly greater proportion of A(H1N1)pdm09 compared to the same period last season, when A(H1N1)pdm09 was detected in <5% of subtyped influenza A viruses. The number of hospitalizations due to severe acute respiratory illness (SARI) remains stable, with 8% associated with influenza detection in week 01.
EuroFlu weekly electronic bulletin

Human Avian and Swine Influenza Updates

Human Avian Influenza
No new WHO report of Influenza at the Human-Animal Interface has been published since 17 December 2012.
WHO Influenza at the human-animal interface
Human Swine Influenza
No new human cases of infection with swine influenza viruses or variants were reported in week 01.
Centers for Disease Control and Prevention seasonal influenza report

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2012-2013 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/influenza outbreaks for the 2012-2013 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Influenza Activity Levels Definition for the 2012-2013 season

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region†**

4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region†**

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html. Ce rapport est disponible dans les deux langues officielles.